

National Engineering College,

(An Autonomous Institution)

K R Nagar, Kovilpatti

**Department of
Mechanical Engineering**

MINUTES of 24th Meeting of Board of Studies held

on

29th November, 2025 at 10.30 a.m.

Venue: Conference Hall,

Autonomous Block,

National Engineering College

National Engineering College, K.R.Nagar, Kovilpatti – 628 503
(An Autonomous Institution - Affiliated to Anna University, Chennai)
www.nec.edu.in

24th Board of Studies Meeting
Department of Mechanical Engineering

Venue: Conference Hall,
Autonomous Block,
National Engineering College

Date & Time: 29.11.2025 & 10.30 a.m.

AGENDA

BoS / MECH 24.1	:	Welcome address and Opening Remarks by Chairman, Board of Studies, Department of Mechanical Engineering
BoS / MECH 24.2	:	Vision and Mission of Department & PEOs and PSOs of B.E. Mechanical Engineering
BoS / MECH 24.3	:	Action taken report on minutes of 23 rd Board of Studies meeting
BoS / MECH 24.4	:	Business brought forward by the Chairman, Board of studies
	24.4.1	B.E. Mechanical Engineering Programme – Syllabus for VII Semester Core Courses under R2023
	24.4.2	B.E. Mechanical Engineering Programme– Syllabus for few Programme Elective Courses under R2023
	24.4.3	Syllabus for few One credit Elective Courses under R2023
	: 24.4.4	Course Design Document of VI Semester Subjects under R2023
BoS / MECH 24.5	:	Suggestions given by the BOS Members

National Engineering College, K.R.Nagar, Kovilpatti – 628 503
(An Autonomous Institution - Affiliated to Anna University, Chennai)

F. No. 1-2/NEC/ MECH

Date: 05th December, 2025

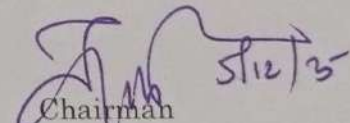
Dear Sir,

Sub: Minutes of the 24th Board of Studies meeting for Mechanical Engineering - Reg.

Kindly find attached herewith the Minutes of the Board of Studies meeting for Mechanical Engineering of National Engineering College, K.R.Nagar, Kovilpatti – 628503 held on 29th November, 2025 at 10.30 a.m. in the Conference Hall, Autonomous Block, National Engineering College, K R Nagar, Kovilpatti

It is requested that comments on the Minutes of Board of Studies meeting, if any, may please be sent by email to hodmech@nec.edu.in, at the earliest. If no comments are received, within one week, the Minutes shall be taken as confirmed.

Yours Sincerely, ✓


Chairman
Board of Studies

National Engineering College, K.R.Nagar, Kovilpatti – 628 503
(An Autonomous Institution - Affiliated to Anna University, Chennai)

Department of Mechanical Engineering

MINUTES OF THE MEETING

The 24th Board of Studies meeting of the Mechanical Engineering was held on 29th November, 2025 at 10.30 a.m.in in the Conference Hall, Autonomous Block, National Engineering College, K.R.Nagar, Kovilpatti – 628 503

1. The following members were present

1.	Dr. S. Iyahraja, Professor & Head, Department of Mechanical Engg., NEC	Chairman
2.	Dr. D Samuel Raj*, Associate Professor/Mechanical Engineering, CEG Campus, Anna University, Chennai – 600025.	University Nominee
3.	Dr. M. Venkata Ramanan, Professor & Director, Institute for Energy Studies, CEG, Anna University, Chennai – 600025	Academic Experts
4.	Dr. N. Siva Shanmugam, Professor / Mechanical Engg., NIT Trichy.	
5.	Mr. K. Monickavasagom Pillai, Chief Scientist, CSIR –National Aerospace Laboratories, Bangalore.	Meritorious Alumnus Nominated by the Principal
6.	Mr. S. Ravikumar* Chief Research & Innovation Testing and Validation, Iniciotek Private Limited, Chennai.	Industrial Experts
7.	Mr. S. Balaji, Assistant General Manager, Hyundai Motor India Limited, Chennai.	
8.	Mr. K. Subramanian Team Lead, ELGI Equipment's Limited, Coimbatore.	
9.	Mr. S. Manikandan, Senior Engineer, Rolls-Royce Power Systems, Pune.	
10.	Dr. D. Venkat Kumar, Professor / Mechanical Engineering	Internal Members
11.	Dr. M. Kathiresan, Professor / Mechanical Engineering	
12.	Dr. R. Harichandran, Professor / Mechanical Engineering	

13.	Dr. I. Sankar, Associate Professor / Mechanical Engineering	
14.	Dr. D. Vignesh Kumar, Associate Professor / Mechanical Engineering	
15.	Dr. F. Michael Thomas Rex, Associate Professor / Mechanical Engineering	
16.	Dr. A. Andrews Assistant Professor (S.G) / Mechanical Engineering	
17.	Dr. K. Thoufiq Mohammed, Assistant Professor (S.G) / Mechanical Engineering	
18.	Mr. C. Veera Ajay, Assistant Professor / Mechanical Engineering	
19.	Ms. M. Rajeswari Assistant Professor / Mechanical Engineering	
20.	Mr. N. Muthu Saravanan Assistant Professor / Mechanical Engineering	
21.	Mr. M. C. Eniyan Assistant Professor / Mechanical Engineering	
22.	Dr. M. Vivekanandan Professor of Practice / Mechanical Engineering	
23.	Mr. D. Benial Raven, IV Year / Mechanical Engineering	Student Members
24.	Mr. V. Sanjay, III Year / Mechanical Engineering	
25.	Mr. P. Subramanyan, II Year / Mechanical Engineering	

* Attended online through G-meet as the flights booked were cancelled in the last minute due to cyclonic condition at Chennai

2. The following members could not attend the meeting due to unavoidable reasons and they were granted leave of absence.

1.	Dr. K. Hariharan, Associate Professor / Mechanical Engineering, IIT Madras.	Academic Experts
2.	Dr. C. Prathap, Professor / Aerospace Engg, Indian Institute of Space Science & Tech., Thiruvananthapuram.	
3.	Mr. V. Hari Babu Senior Vice President, Head of Engineering (Aero) & DOA Delegations Responsible, Axiscades Technologies Ltd., Bangalore.	Industrial Experts

4.	Mr. A T Paary, Deputy General Manager/ Mechanical – Static Dept., Larsen & Toubro (L&T) Limited, Chennai	
5.	Dr. D. P. Sudhakar Deputy Director ISRO - Indian Space Research Organization Mahendragiri, Tirunelveli District.	R & D Expert

BoS / MECH 24.1	:	WELCOME ADDRESS AND OPENING REMARKS BY CHAIRMAN, BOARD OF STUDIES, DEPARTMENT OF MECHANICAL ENGINEERING
	:	The Chairman, BOS of the Mechanical Engineering welcomed and introduced the members of 24 th Board of Studies and acknowledged each one of them for sparing their valuable time to attend the meeting.
BoS / MECH 24.2	:	TO DISCUSS ANY SUGGESTIONS / MODIFICATIONS NEEDED IN THE VISION AND MISSION OF DEPARTMENT & PEOs AND PSOs OF B.E. MECHANICAL ENGINEERING
	:	Vision and Mission of the Mechanical Engineering Department, and PEOs and PSOs of B.E. Mechanical Engineering were presented by the Chairman.
BoS / MECH 23.3	:	TO APPROVE THE ACTION TAKEN REPORT OF THE MINUTES OF TWENTY THIRD BOS MEETING HELD ON 06 th JUNE, 2025.
	:	The minutes of the Twenty third Board of Studies meeting held on 06 th June, 2025 were communicated to the members. The comments given by the members have been incorporated wherever possible and placed for confirmation. The same was approved in the 23 rd Academic Council Meeting. The action taken report of the Twenty third Board of Studies meeting held on 06 th June, 2025 has been presented and the same has been approved in the 24 th Board of Studies meeting. (Enclosed in Annexure – I)
BoS / MECH 24.4.1	:	TO CONFIRM AND APPROVE B.E. Mechanical Engineering Programme – Syllabus for final year Core Courses under R2023 (Enclosed in Annexure – II)

BoS / MECH 24.4.2	:	TO CONFIRM AND APPROVE B.E. Mechanical Engineering Programme – Syllabus for few Programme Elective Courses under R2023 (Enclosed in Annexure – III)
BoS / MECH 24.4.3	:	TO CONFIRM AND APPROVE Syllabus for few One Credit Elective Courses under R2023 (Enclosed in Annexure – IV)
BoS / MECH 24.4.4	:	TO DISCUSS AND APPROVE Course Design Document of VI Semester Courses under R2023 (Enclosed in Annexure – V)
BoS / MECH 24.5	:	Suggestions Given by the Members
24.5.1		<p><u>23ME71C - Mini Project</u></p> <ul style="list-style-type: none"> • The phrase “systematic literature review” in the CO1 statement may be moved after “need analysis” to maintain alignment with the syllabus content. (CO1: Identify and define an engineering problem through need analysis, systematic literature review and feasibility study.) • The term “Problem Identification & Need Analysis” in the course content may be removed. • The phrase “Selection of topic” in the course content may be revised to “Selection of topic/problem” for improved clarity. • The topic “Life cycle costing” may be included in suitable place in course content.
24.5.2	:	<p><u>23ME72C - Internship</u></p> <ul style="list-style-type: none"> • In the CO1 statement, the word “industry” may be removed from the phrase “industry practical” for improved clarity. • In the CO1 statement, the phrase “direct involvement” may be replaced with the word “internship” for better relevance. • In the CO1 statement, the phrase “real-world industrial and organizational activities” may be replaced with “in real-world industries, research organizations and institutes” for better alignment. • In Course Content Point (b), the word “information” may be replaced with the word “content.” • In Course Content Point (b), the details may be revised to include both industry and research institute aspects, namely: <ul style="list-style-type: none"> ✓ Profile of the Industry/Research Institute, ✓ Product/Research Area,

		<ul style="list-style-type: none"> ✓ Organization Structure, ✓ Facility/Plant/Research Layout, ✓ Processes/Machines/Equipment/Devices, ✓ Personnel Welfare Schemes, ✓ Details of the Training Undergone, ✓ Projects Undertaken During the Training (if any) ✓ Learning Points.
24.5.3	:	<p><u>23ME81C - Capstone Project/Industry Practice</u></p> <ul style="list-style-type: none"> • In the CO1 statement, the term “literature survey” may be placed after “need assessment” for better alignment. • The word “optimized” may be removed from the CO2 statement for clarity. • The term “sustainability considerations” may be included in either CO1 or CO2. • In the CO3 statement, the phrase “professional ethics” may be replaced with “integrity”, and the phrase “sustainability considerations” may be removed.
24.5.4	:	<p><u>23ME06E - Energy Conservation in Industries</u></p> <ul style="list-style-type: none"> • The CO1 and CO2 statements may be merged into a single Course Outcome for better consolidation and clarity. • Reference 3 (Bureau of Energy Efficiency, “<i>Energy Manager Training Manual</i>”, <i>Reference Book No. 1 to 4</i>) may be moved from the References section to the Text Books section. • Text Book 1 and Text Book 2 may be shifted to the Reference Books section.
24.5.5		<p><u>23ME07E - Thermal Management of Batteries and Fuel Cells</u></p> <ul style="list-style-type: none"> • In the CO1 content, the word “aging” may be corrected to “ageing” for consistency with standard usage. • It was suggested that the brand name should not be mentioned in the syllabus. • It was recommended that relevant NPTEL resources, if available, may be added to the syllabus.
24.5.6	:	<p><u>23ME27E - Vehicle Systems Design</u></p> <ul style="list-style-type: none"> • In the CO4 content, the term “Comparative study” may be added at the end.

24.5.7	:	<u>23ME28E - Drone Technology</u> <ul style="list-style-type: none"> In the CO4 content, the word “panoramic” may be rephrased as “photogrammetry”, as it encompasses applications such as the petrochemical industry, surveying, etc.
24.5.8	:	<u>23ME31E - Applied AI for Manufacturing</u> <ul style="list-style-type: none"> The course title “Applied AI for Manufacturing” may be changed to “Artificial Intelligence in Manufacturing.” The CO1 statement may be revised to align with the updated course content
24.5.9	:	<u>23ME38E - Artificial Intelligence in Materials Engineering</u> <ul style="list-style-type: none"> In the CO5 course content, the term “Structure–property–prediction” may be changed to “Structure–property–performance prediction” for improved technical clarity. In the Reference Section (No. 4), the relevant NPTEL course title may be added for completeness and verification.
24.5.10	:	<u>23ME39E - Intelligent Manufacturing Systems</u> <ul style="list-style-type: none"> The topic “Dark Factories” may be added in the appropriate course content unit for better coverage of emerging manufacturing concepts.
24.5.11	:	<u>23ME44E - Supply Chain and Logistics Management</u> <ul style="list-style-type: none"> “Multi-Objective Optimization using Evolutionary Algorithms” authored by Kalayanmoy Deb may be added in Text book section. The topics “SAP,” “Digital Twin,” and the “Role of AI in Supply Chain Management (SCM)” may be added in the appropriate course content for enhanced industry relevance and technological coverage.
24.5.12	:	<u>23ME45E - Industrial Safety Engineering</u> <ul style="list-style-type: none"> The topic “HAZOP” may be added in the appropriate place in the CO3 course content for better coverage of hazard analysis techniques. The topics “Safety in Materials Handling – Ladder, Forklift, and Scaffold” may be added in the suitable course content unit for comprehensive coverage of workplace safety practices.
24.5.13		<u>23ME46E - Industry 4.0</u> <ul style="list-style-type: none"> In the CO1 statement, the word “demonstrate” may be changed to “explore” for better alignment with the course content.
24.5.14		<u>23ME07L - Design for Environment</u>

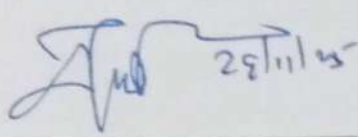
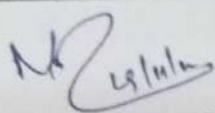
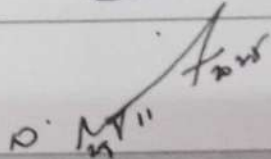
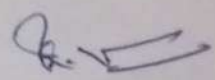
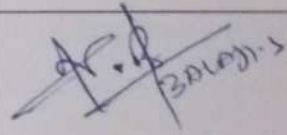
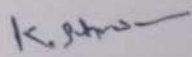
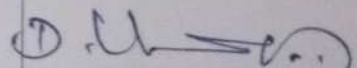
	<ul style="list-style-type: none"> • In the CO1 statement, the word “know” may be changed to “explore” for improved action orientation. • The topics “ESG (Environmental, Social, and Governance)” and “EIA (Environmental Impact Assessment)” may be added. • The latest books may be updated in the syllabus to ensure currency of learning resources.
24.5.15	<p><u>23ME08L - Codes and Standards</u></p> <ul style="list-style-type: none"> • The course title “codes and standards” may be changed to “codes and standards for welding” for better specificity. • In the CO1 statement may be revised to better align with course content.
24.5.16	<p><u>Any other matter</u></p> <ul style="list-style-type: none"> • Two additional one-credit topics may be added: “Automotive Standards” and “BIS Standards • Abroad internships for students may be encouraged to provide international exposure and broaden practical learning opportunities.

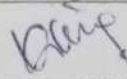

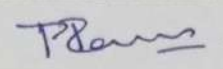
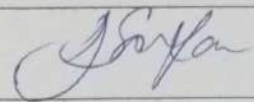
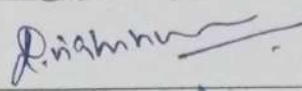
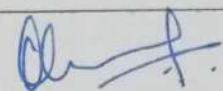

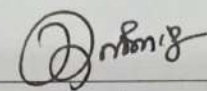
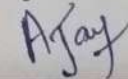
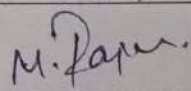
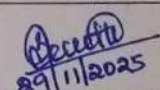
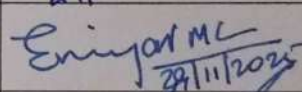
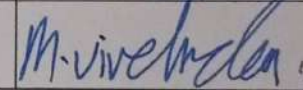
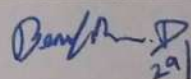
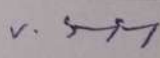
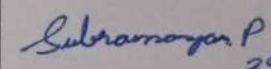
The student members from the second year, third year and final year B.E. Mechanical Engineering program presented their views on the R2023 curriculum and its courses. The members had a brainstorming discussion and interaction among themselves. After discussion, Board of Studies of Mechanical Engineering resolved to recommend the changes in syllabus for the final year core courses (Annexure II) and few programme elective courses (Annexure III) prescribed for B.E. Mechanical Engineering under Regulation 2023, syllabus of few one credit courses prescribed for all U.G. Programmes (Annexure IV) under Regulation 2023, course design document for V semester core courses under R2023 (Annexure V).

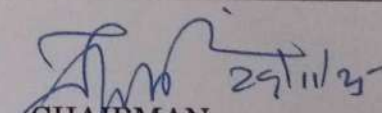
After carrying out the modifications suggested by the members, it will be presented to the Academic Council for further approval.

Dr. D. Venkatkumar, Professor / Mechanical Engineering proposed vote of thanks for their kind cooperation and the meeting came to an end.

Members Present for the 24th BoS Meeting of Mechanical Engineering on 29.11.2025

CHAIRMAN	
Dr. S. Iyahraja, Professor & Head / Mechanical Engineering, National Engineering College, Kovilpatti	
UNIVERSITY NOMINEE	
Dr. D Samuel Raj, Associate Professor / Mechanical Engineering, CEG Campus, Anna University, Chennai.	Attended Online
ACADEMIC EXPERTS	
Dr. M. Venkata Ramanan, Professor & Director / Institute for Energy Studies, CEG Campus, Anna University, Chennai.	
Dr. N.Siva Shanmugam, Professor / Mechanical Engg., NIT Trichy.	
MERITORIOUS ALUMNUS NOMINATED BY THE PRINCIPAL	
Mr. K Monickavasagom Pillai, Chief Scientist, CSIR –National Aerospace Laboratories, Bengaluru.	
INDUSTRIAL EXPERTS	
Mr. S. Ravikumar, Chief Research & Innovation Testing and Validation, Iniciotek Private Limited, Chennai.	Attended Online.
Mr. S.Balaji, Assistant General Manager, Hyundai Motor India Limited, Chennai.	
Mr. K. Subramanian Team Lead, ELGI Equipment's Limited, Coimbatore.	
Mr. S. Manikandan, Senior Engineer, Rolls-Royce Power Systems, Pune.	S. Manikanda.
INTERNAL MEMBERS	
Dr. D. Venkat Kumar, Professor / Mechanical Engineering	

Dr. M. Kathiresan, Professor / Mechanical Engineering	
Dr. R. Harichandran, Professor / Mechanical Engineering	
Dr. P. Ramanan, Associate Professor / Mechanical Engineering	
Dr. I. Sankar, Associate Professor / Mechanical Engineering	
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Mr. M. C. Eniyan Assistant Professor / Mechanical Engineering	 Eniyan MC 29/11/2025
Dr. M. Vivekanandan Professor of Practice / Mechanical Engineering	 M. Vivekanandan
STUDENT MEMBERS	
Mr. D. Benial Raven, IV Year / Mechanical Engineering	 29/11/2025
Mr. V. Sanjay, III Year / Mechanical Engineering	 29/11/25
Mr. P. Subramanyan, II Year / Mechanical Engineering	 Subramanyan P 29/11/2025


 CHAIRMAN
 BOARD OF STUDIES/MECH. ENGG.